

July 10, 2019

Town of Trade Lake
11810 Town Hall Road
Frederick, WI 54837



Subject:

General Geology and Hydrogeology of the Town of Trade Lake
Specific to Concentrated Animal Feeding Operations (CAFO)

Dear Town Board:

This letter and enclosed information will summarize the soils, geology, and hydrogeology of the Town of Trade Lake, both in general, and specific to the currently proposed CAFO site.

General Setting

The Town of Trade Lake is located in the St. Croix River Basin. The entire basin is glaciated, and is covered by a mix of glacial deposits. Deposits specific to the Town of Trade Lake include end moraine deposits of clay, sand, and gravel, pitted outwash deposits of stratified sand and gravel, and a small area of ground moraine in the northeast corner of the town. Ground moraine deposits consist of a mix of clay, silt, sand, gravel, and boulders. Permeability rates of these deposits for water are generally high, ranging from 0.2-5 inches per hour, however infiltration rates for contaminants are much lower due to absorption, retardation, and plant nutrient uptake. A map of the basin and town deposits and permeability (U.S.G.S. Hydrologic Atlas HA-451) is included as Figure 1.

Precambrian crystalline rock (Basalt) is the bedrock beneath the eastern approximately 2/3 of the Town. Undifferentiated sandstone lies beneath the western 1/3. The depth to bedrock is generally greater than 100 feet below land surface (bls) with sufficient groundwater in the surficial sand and gravel to provide water to residences and farms. Therefore, very few wells in the Town receive water from either bedrock formation versus the sand and gravel. Bedrock geology of the basin and Town is shown on Figure 2 (U.S.G.S. Hydrologic Atlas HA-451).

The depth to groundwater in the town varies greatly, and is generally relative to surface elevation. A review of historic well records in the town show variations in depth to groundwater from as low as 3 feet bls to 145 feet bls, depending on the elevation of the well. Wells with water levels less than 10 feet are likely to be adjacent to lakes or rivers.

Surface soils in the town are mixed, with muck-typically in wetland areas, sand, silty loam, sandy loam, gravelly loam, clay loam, and clay. Wetlands and wetland indicator soils are present throughout the town, and are depicted on Figure 3.

CAFO Risks and Concerns

Concentrated Animal Feeding Operations (CAFOs) are heavily regulated by the Wisconsin Department of Natural Resources (WDNR). The permit process consists of a two-step, twelve (12) month process which includes a preliminary application, a site visit by a WDNR specialist, follow up with additional information required, and six (6) months prior to operation, submittal of the final application. The final application includes very specific engineered plans, environmental assessment (which may include social and economic impacts), public notice and comment period.

Potential environmental risks from improper manure storage and use at a CAFO may include impacts to wetlands, surface water, and/or groundwater. Increased nitrogen and phosphorus levels in surface water and wetlands increase algae blooms, while elevated nitrate in groundwater is a health risk. Data compiled in the 1997 Wisconsin Geological and Natural History Survey Miscellaneous Map 42, depicts nitrate levels in groundwater in Burnett County based on samples collected from 1991-1994. Samples in the Town of Trade Lake were typically non-detect (below 1 mg/L), however levels as high as 5 mg/L were observed in the northwest corner of the Town. A more recent study, compiled by the University of Wisconsin Stevens Point, depicts both averages and exceedances for nitrate in groundwater although the data appears to be limited. Data mapping for nitrate is shown on Figures 4a-4c.

The WDNR is authorized by the U.S. Environmental Protection Agency (EPA) to implement the Clean Water Act through the CAFO permit system. There is a “zero” discharge standard for runoff to navigable waters. A CAFO operator may be subject to the enforcement process for violations. The WDNR does not regulate other potential concerns which may include odor, traffic, or light pollution.

An additional concern at any agricultural facility may be petroleum storage and use. Agricultural petroleum storage tanks less than 1,100 gallons in capacity do not require registration are not regulated or inspected by the Department of Agriculture, Trade, and Consumer Protection (DATCP).

Current Proposed CAFO – Cumberland LLC

The proposed Cumberland LLC CAFO is located in the NW $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 7. Based on the data provided, and available on the WDNR web site, a preliminary application was received by the WDNR on March 15, 2019. Soils in the production area consist primarily of Alstad loam, and Branstad fine sandy loam. The proposed site plan is included in Attachment A. The Alstad soil is a somewhat poorly drained loam/fine sandy loam formed on the footslopes of moraines, while the Branstad soil is moderately well drained fine sandy loam formed on moraine rises. Soil mapping and specific soil information for the site is included as Attachment A. This data was included in the preliminary application submitted to the WDNR.

A mapped wetland is present in the northeast corner of the parcel, as well as a “wetland too small to delineate” near the southwest corner of the parcel. WDNR mapping for the parcel is included in Appendix A. Larger areas of wetland exist outside of the production parcel, and any manure spreading on adjacent properties would be limited due to manure spreading restrictions set forth by the WDNR. This would be dictated in the nutrient management plan. A map depicting restricted manure spreading areas is included as Figure 5.

Geologic mapping indicates surficial deposits on the parcel consist of glacial end moraine deposits approximately 150 feet thick, overlying sandstone bedrock (Figures 1 and 2). Historical well logs were searched for the area, with only one log available within the SE $\frac{1}{4}$ of Section 7, which showed 80 feet of clay underlain by 78 feet of sandy clay and a static groundwater level of 80 feet bls. A copy of the well log for the NE $\frac{1}{4}$ of the SE $\frac{1}{4}$ of Section 7 is included in Attachment A. Five (5) other well logs were available for Section 7, which indicated depths to groundwater of 53-85 feet bls.

Conclusions and Recommendations

The Town of Trade Lake has varied geology and hydrogeology, some of which may not be appropriate for CAFO siting. Suitability for specific sites is determined by the WDNR through the CAFO permit process, and sites with potential risks may require additional engineered safeguards through the DNR, or as determined during the public comment period. Once permitted, any

inadequacies in operation are subject to enforcement and potential fines by the WDNR, with public notification and complaint being a common cause for inspection.

Given the depth to groundwater, and soil types, the 37 acre Cumberland LLC property itself appears to pose minimal risk to groundwater and surface water, provided that the appropriate engineering controls are installed and followed.

REI thanks you for the opportunity to service your environmental consulting needs. Please contact me at (715) 675-9784 or Adelforge@REIengineering.com if you would like to discuss this further.

Sincerely,
REI Engineering, Inc.



Andrew R. Delforge P.G.
Senior Hydrogeologist/Project Manager

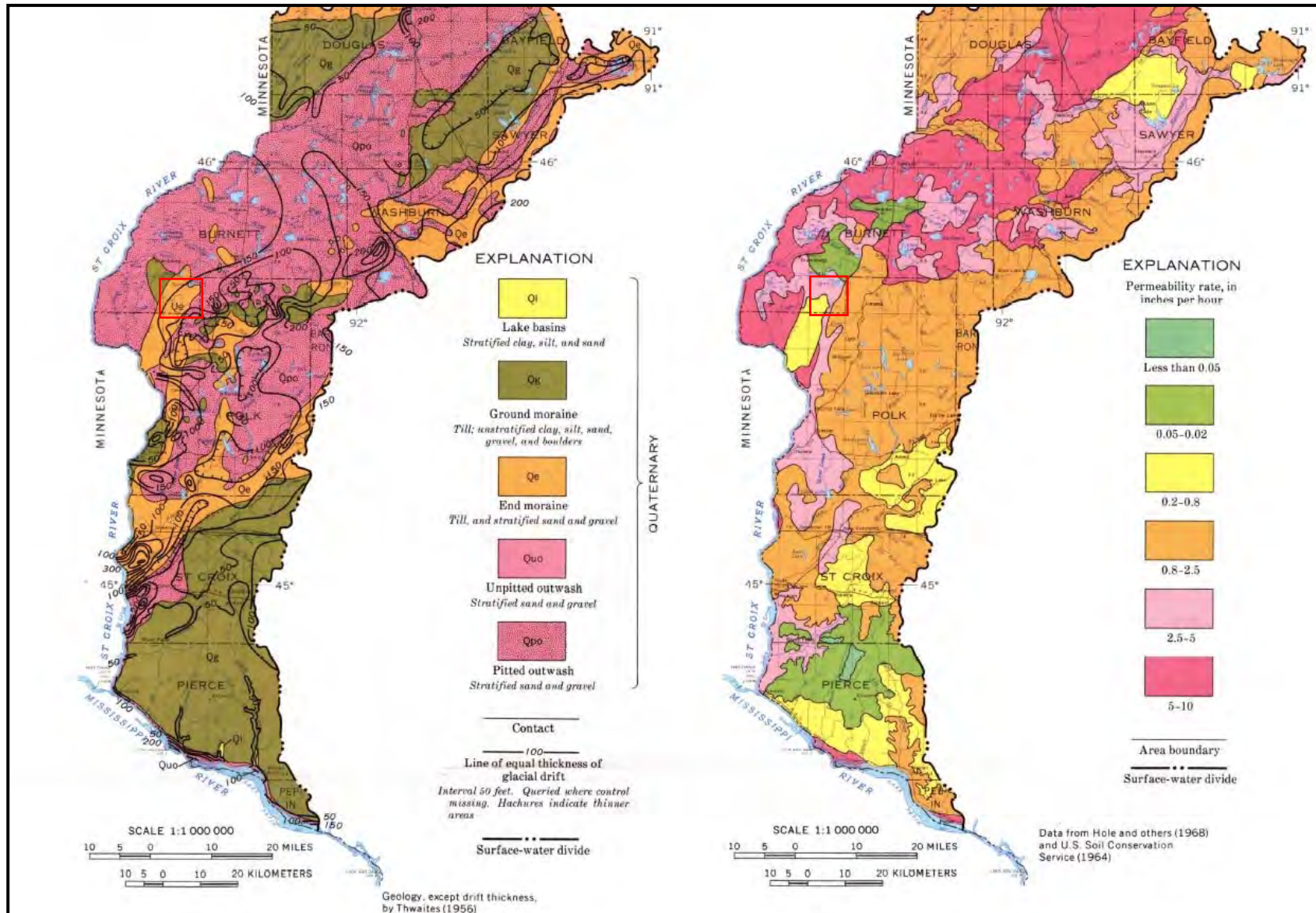


Figure 1 – Surficial Deposits and Permeability
Town of Trade Lake, Burnett County, WI

REI No. 8792

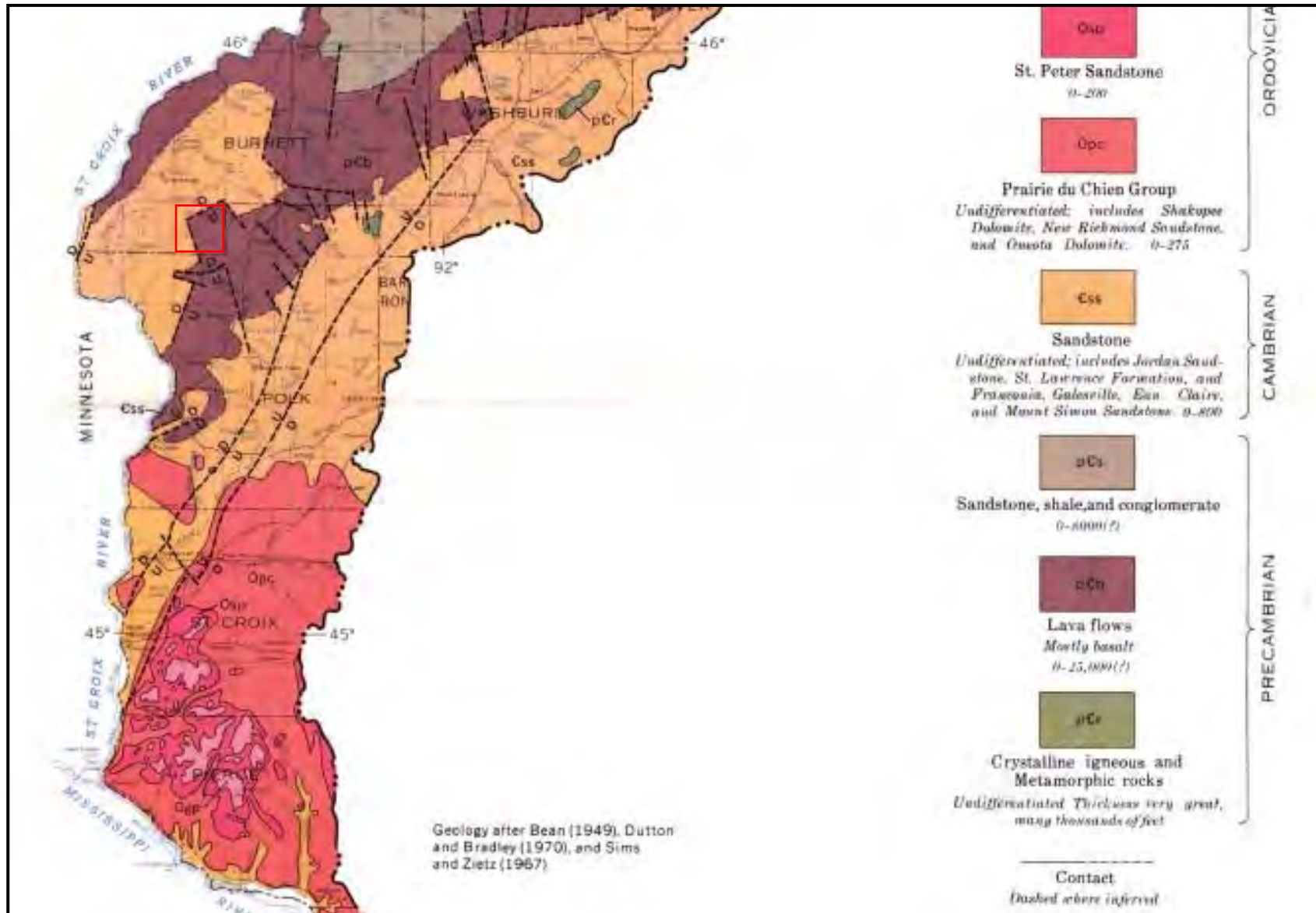


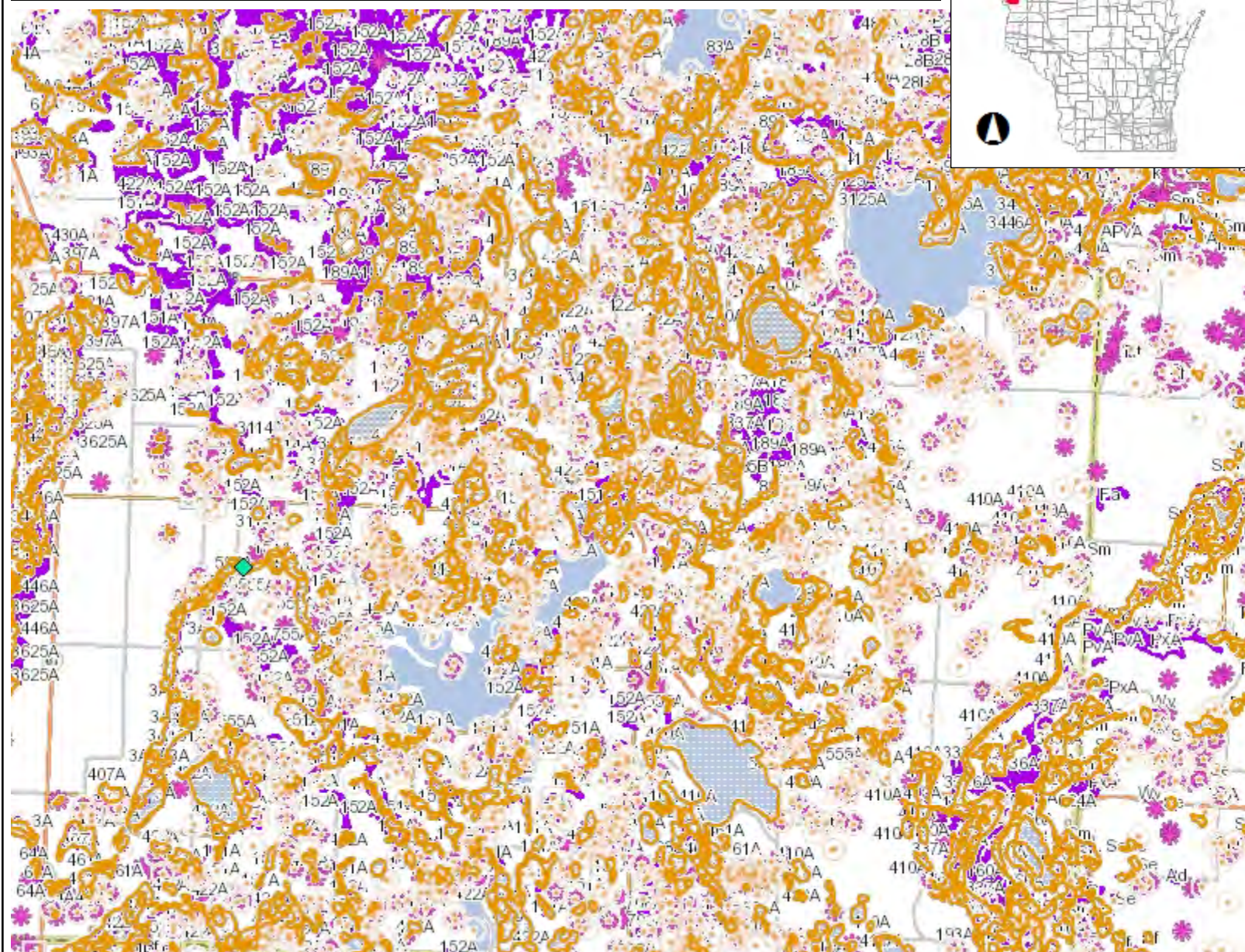
Figure 2 – Bedrock Geology

Town of Trade Lake, Burnett County, WI

REI No. 8792



Figure 3 - Wetlands and Indicator Soils



Legend

- Wetland Identifications and Confirmations
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
 - Wetland
 - Upland
- Filled Areas
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- Filled Points
- Wetland Class Areas
 - Wetland
 - Upland
- Filled Areas
- NRCS Wetspots
- Maximum Extent Wetland Indicators
- Intermittent Streams
- 24K Hydrography Streams and Rivers
- 24K Hydrography Lakes and Open Water
- Municipality
- State Boundaries
- County Boundaries

2.0 0 1.00 2.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 63,360

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>

Notes

Town of Trade Lake

Plate 1

A part of the Burnett County Groundwater Resource Investigation, a joint project of the Wisconsin Geological and Natural History Survey and the Burnett County Board of Supervisors.

Compiled by M.S. Bridson
 Automation by K.C. Roushar
 Edited by K.J. Cates

EXPLANATION

8 nitrate as nitrogen of water sample, in mg/L (NO₃-N)
 (<1 indicates that nitrate as nitrogen level was below 0.5 mg/L)

GEOLOGIC MATERIALS CONTRIBUTING WATER TO WELL BY SOURCE OF DATA

INFERRED FROM KNOWLEDGE OF GEOLOGY OR
 FROM WELL CONSTRUCTION RECORD

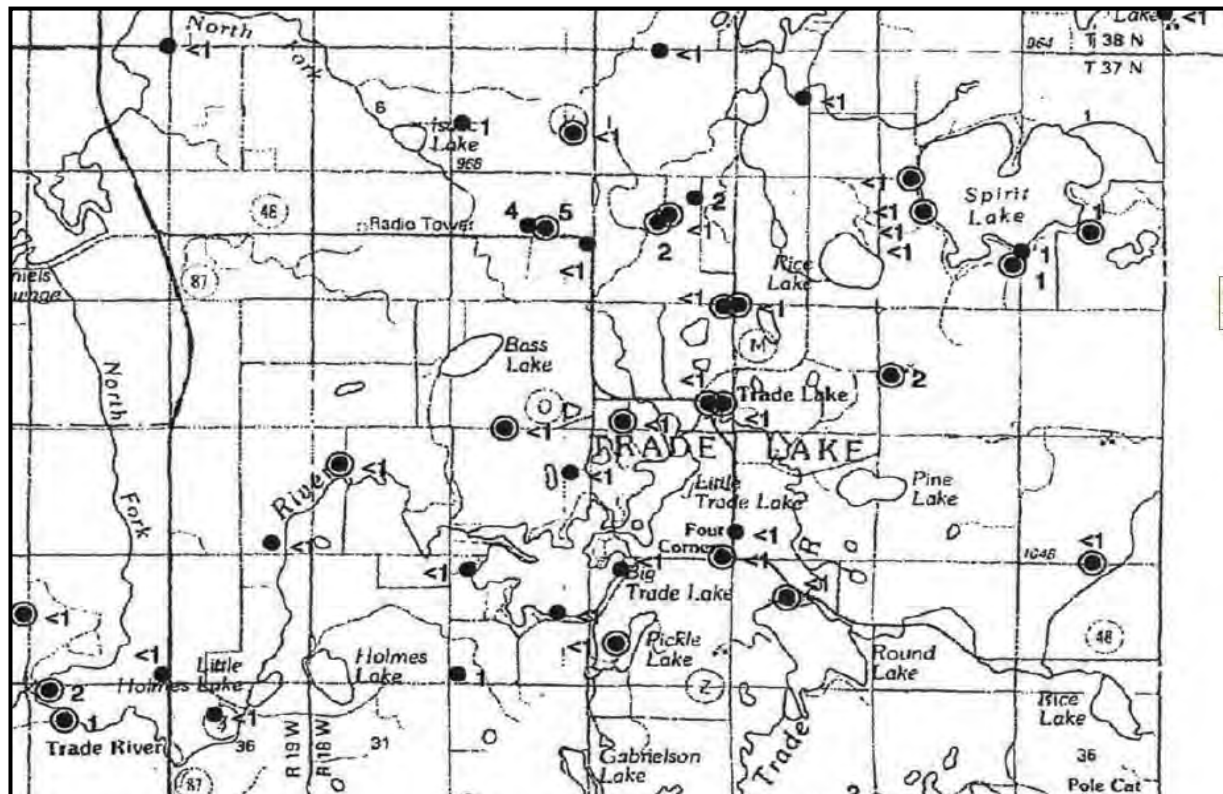


Figure 4a – 1991-1994 Nitrates in Groundwater
 Town of Trade Lake, Burnett County, WI

Photographs
 REI No. 8792

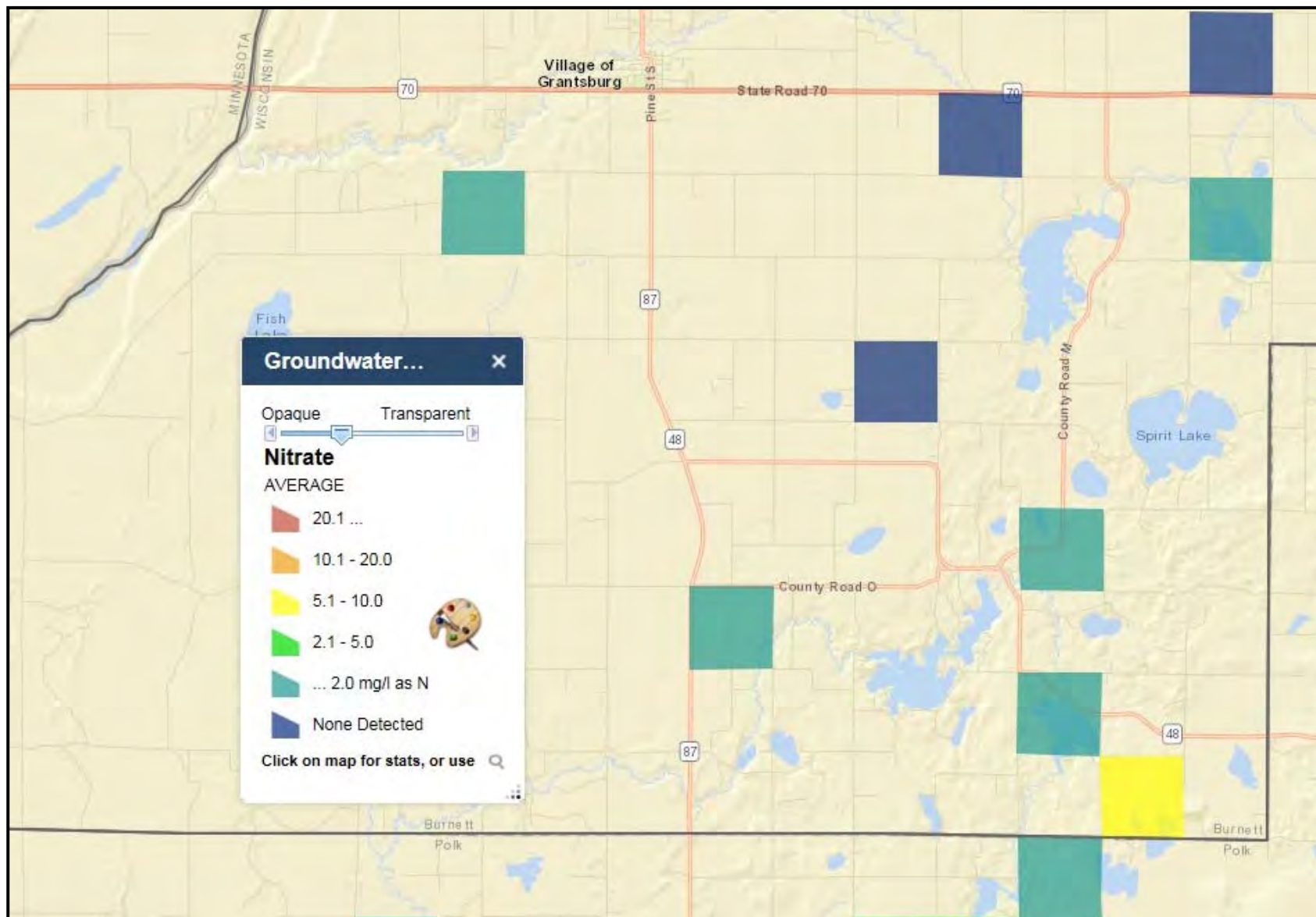


Figure 4b – Average Nitrate Concentrations
Town of Trade Lake, Burnett County, WI

REI No. 8792

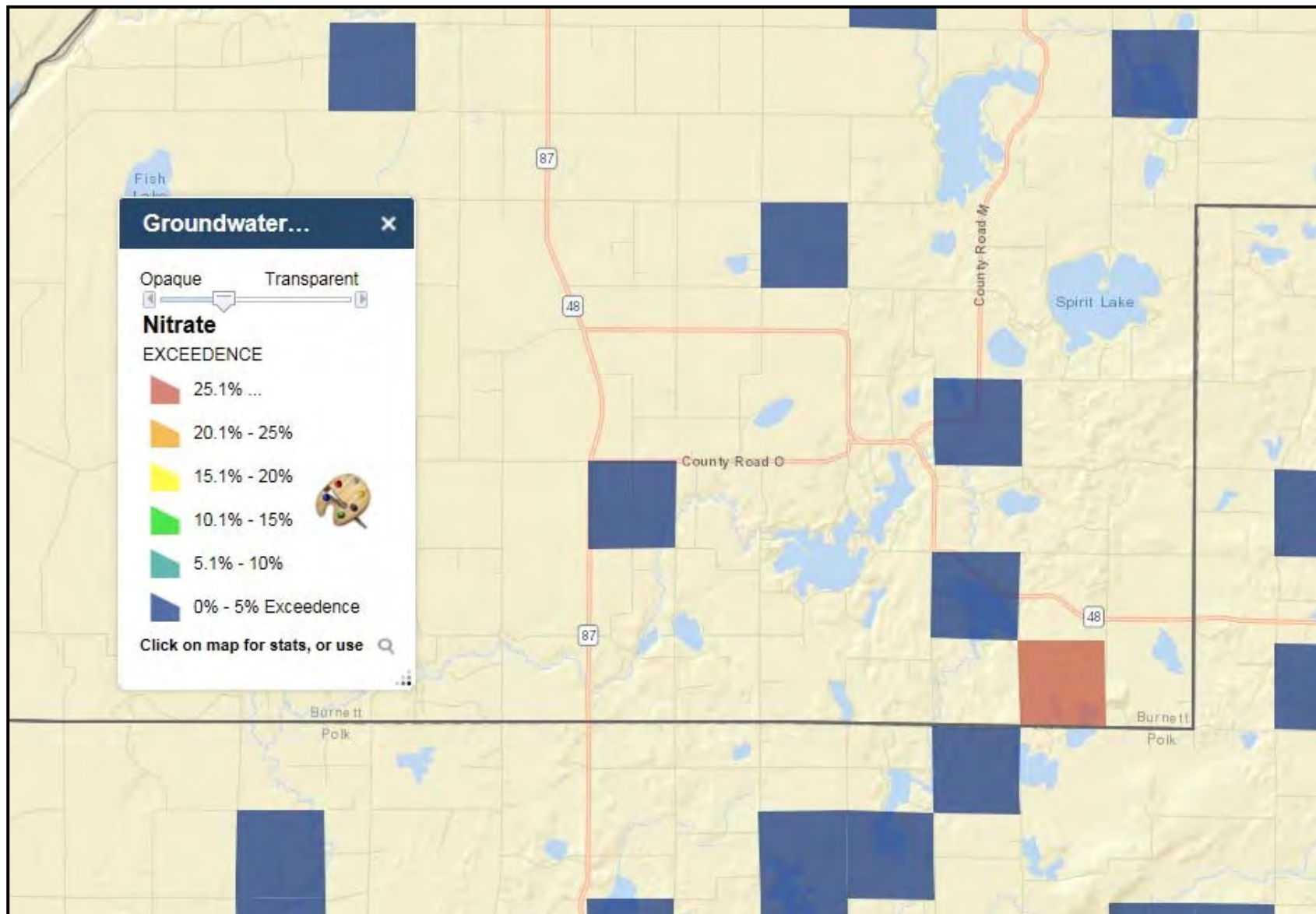


Figure 4c – Nitrate Exceedances
 Town of Trade Lake, Burnett County, WI

REI No. 8792

SnapPlus

Wisconsin's Nutrient Management Software

590 Nutrient Management Standard: SnapMaps Legend Colors and Symbols Explanations

This publication explains the map symbols used in SnapMaps for nutrient management planning using Wisconsin's 590 Nutrient Management Standard.



SWQMAs (blue diagonal line patterns)

Surface Water Quality Management Area is an area 300 ft. (blue back-slash pattern) from a stream or river or 1,000 ft. (blue front-slash pattern) from a lake or pond. (Note: SWQMA is often pronounced as *swik-muh*.)

- ✓ **In the winter**, nutrient applications are prohibited when frozen soils or snow prevent effective incorporation.
- ✓ When it is not winter, nutrient applications are restricted. Any nutrient application must either be incorporated within 3 days or be accompanied by one of the following:
 - ✓ Permanent vegetated buffers.
 - ✓ Maintenance of more than 30% residue or vegetative cover (On long-term no-till fields with less than 30% residue or plant cover, nutrients can be applied within 7 days of planting).
 - ✓ Crop or cover crop establishment before or immediately after application.
- ✓ Unincorporated liquid manure application rates cannot be more than 12,000 gallons per acre at any one time.



SWQMA 1000 ft Dismissed (gray diagonal pattern)

Areas where the planner has turned off the SWQMA designation after determining the lake or pond indicated on the map is in error.



Tile lines (brown lines)

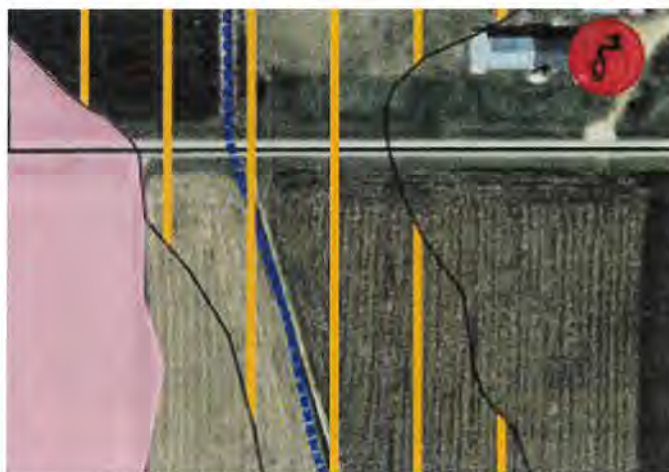
- ✓ Unincorporated liquid manure applications are limited to 12,000 gallons per acre.



Bedrock depth < 5 ft (orange areas with black outline)

Areas where bedrock is within 5 ft. of the surface have an increased risk of groundwater contamination.

- ✓ Commercial nitrogen fertilizer is prohibited in the late summer or fall except on fall-seeded crops or in blends with other fertilizers, maximum application rate is 36 lb N per acre.



Nitrogen (N) restricted soils (gold lines or squares)

Soils identified as having a high risk for allowing contaminants to leach through to groundwater have restrictions on N rates and timing.

- ✓ Fall applications of commercial nitrogen are not allowed on these soils except for up to 36 lb N per acre on fall-seeded crops or in blends with other fertilizers.
- ✓ Each soil type has additional restrictions as described below:



P (high permeability) Water moves through these soils relatively quickly.

- ✓ Fertilizer N in the spring and summer has to be applied in split applications with the majority post-planting or else applied with a nitrification inhibitor or in slow-release form.
- ✓ Late summer or fall manure N is limited to 90 lb N/a for spring-planted crops (i.e. corn, soybean) and 120 lb per acre for all other crops. Fall applications before spring-planted crops should be delayed until soil temperatures are less than 50°F or October 1, whichever comes first. If the manure has 4% dry matter or less, applications must be surface-applied or use a nitrification inhibitor.



R (bedrock likely to be within 20 inches of the soil surface)

- ✓ These soils have the same late summer and fall manure N guidelines as outlined above for P soils but do not have restrictions on spring or summer commercial fertilizer.



W (water table within 12 inches of the surface)

- ✓ Late summer or fall manure N is limited to 120 lb per acre.
- ✓ For fall-applied manure with 4% or less dry matter, the application is limited to 90 lb N unless one of the following is used: surface application; nitrification inhibitor; application to growing crop; cover crop established within 14 days; or application delayed until soil temperatures are less than 50° F or October 1, whichever comes first.

continued on back →

For more information about the SnapPlus program: snapplus.wisc.edu

March 2019

This publication is available from the Nutrient and Pest Management Program: phone (608) 265-2660, email: npm@hort.wisc.edu or visit our website at ipcm.wisc.edu

ATTACHMENT A

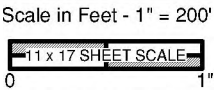
CUMBERLAND LLC SITE DATA





"STATE LAW AND NRCS POLICY REQUIRE THAT THE EXCAVATOR CONTACT DIGGERS HOTLINE AT 811 OR (800) 242-8511 FOR UTILITY LOCATIONS 72 HOURS PRIOR TO THE START OF EXCAVATION WORK."

REV	DESCRIPTION OF REVISION	BY	DATE	APPROVED
A	*	*	*	*



NOTE:
IF THIS BAR DOES NOT MEASURE 1"
THEN DRAWING IS AT DOUBLE
SCALE OR NOT TO SCALE

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Oakridge
ENGINEERING

Chippewa Falls, WI 54729
www.OakridgeEng.com

DESIGNED:	*
DRAWN:	DDM
PROJECT MANAGER:	DDM

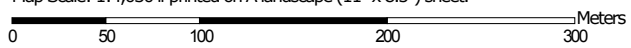
-SHEET DESCRIPTION-	PROJECT NO. SUIDA-01-18
SITE PLAN	DRAWING NO. D2_P1_SUIDAE
-CLIENT-	DATE: 03-15-2019
CUMBERLAND LLC	SHEET <u>SP</u> OF <u>*</u>

Soil Map—Burnett County, Wisconsin
(Cumberland LLC)



Soil Map may not be valid at this scale.

Map Scale: 1:4,030 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

3/15/2019
Page 1 of 3


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Burnett County, Wisconsin

Survey Area Data: Version 17, Sep 11, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 9, 2013—Sep 8, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
152A	Alstad loam, 0 to 3 percent slopes	20.7	35.8%
422A	Seelyeville, Cathro, and Rondeau soils, 0 to 1 percent slopes	0.8	1.4%
553B	Branstad fine sandy loam, 2 to 6 percent slopes	33.7	58.1%
553C	Branstad fine sandy loam, 6 to 12 percent slopes	2.8	4.8%
Totals for Area of Interest		58.0	100.0%

Burnett County, Wisconsin

152A—Alstad loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: h1cx

Elevation: 800 to 2,000 feet

Mean annual precipitation: 28 to 33 inches

Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 90 to 140 days

Farmland classification: Prime farmland if drained

Map Unit Composition

Alstad and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alstad

Setting

Landform: Moraines

Landform position (two-dimensional): Footslope

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Loamy calcareous till

Typical profile

Ap - 0 to 9 inches: loam

E - 9 to 15 inches: fine sandy loam

E/B - 15 to 18 inches: fine sandy loam

B/E - 18 to 24 inches: sandy clay loam

Bt - 24 to 49 inches: sandy clay loam

C - 49 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 6 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 10 percent

Available water storage in profile: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: B/D

Forage suitability group: Mod AWC, high water table
(G090AY004WI)
Hydric soil rating: No

Minor Components

Bluffton

Percent of map unit: 10 percent
Landform: Depressions on moraines, drainageways on moraines
Hydric soil rating: Yes

Branstad

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Burnett County, Wisconsin
Survey Area Data: Version 17, Sep 11, 2018

Burnett County, Wisconsin

553B—Branstad fine sandy loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: h211

Elevation: 790 to 1,640 feet

Mean annual precipitation: 25 to 33 inches

Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 90 to 140 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Branstad and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Branstad

Setting

Landform: Moraines

Landform position (three-dimensional): Rise

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy calcareous till

Typical profile

Ap - 0 to 9 inches: fine sandy loam

E - 9 to 14 inches: fine sandy loam

E/B - 14 to 20 inches: fine sandy loam

B/E - 20 to 45 inches: sandy clay loam

Bt1 - 45 to 55 inches: sandy clay loam

Bt2 - 55 to 68 inches: fine sandy loam

Btk - 68 to 80 inches: fine sandy loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 24 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 10 percent

Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C
Forage suitability group: Mod AWC, adequately drained
(G090AY005WI)
Hydric soil rating: No

Minor Components

Alstad

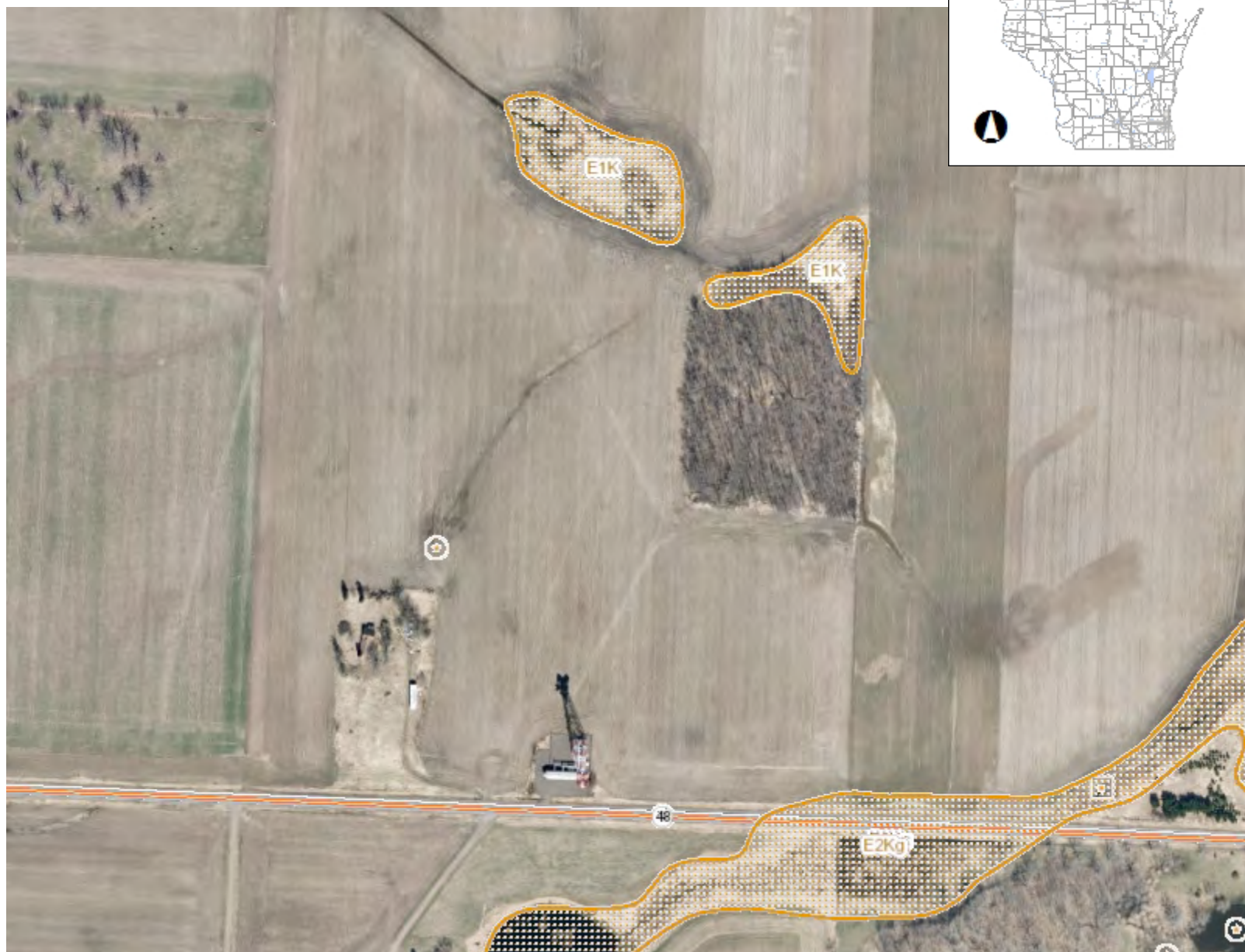
Percent of map unit: 5 percent
Landform: Moraines
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Burnett County, Wisconsin
Survey Area Data: Version 17, Sep 11, 2018



Mapped Wetlands and Indicator Soils - Cumberland LLC Site



Legend

- Wetland Identifications and Confirmations
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
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 - Filled/draind wetland
 - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
 - Wetland
 - Upland
- Filled Areas
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
 - Interstate Highway
 - State Highway
 - US Highway
- County and Local Roads
 - County HWY
 - Local Road
- Railroads

Notes

0.1 0 0.06 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 3,960

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NOTE:

White Copy - Division's Copy
Green Copy - Driller's Copy
Yellow Copy - Owner's Copy

JAN 30 1986

1. COUNTY Burnett		CHECK (✓) ONE: <input checked="" type="checkbox"/> Town <input type="checkbox"/> Village <input type="checkbox"/> City		Name TRADE LAKE																	
2. LOCATION OR - Grid or Street No. NE SE Section 7 Township 37N Range 18W		3. NAME <input checked="" type="checkbox"/> OWNER <input type="checkbox"/> AGENT AT TIME OF DRILLING CHECK (✓) ONE Charlotte Selander																			
AND - If available subdivision name, lot & block No.		ADDRESS RT 1 TRADE LAKE POST OFFICE Grantsburg WI ZIP CODE																			
4. Distance in feet from well to nearest: (Record answer in appropriate block)		Building 33'		Sanitary Bldg. Drain C.I. Other		Sanitary Bldg. Sewer C.I. Other		Floor Drain Connected To C.I. Sewer Other Sewer		Storm Bldg. Drain C.I. Other		Storm Bldg. Sewer C.I. Other									
Street Sewer San. Storm		Other Sewers C.I. Other		Foundation Drain Connected to Sewer Clearwater Dr.		Sewage Sump C.I. Other		Clearwater Sump		Septic Tank		Holding Tank 85		Sewage Absorption Unit Seepage Pit Seepage Bed Seepage Trench		Manure Hopper or Retention or Pneumatic Tank					
Privy Pet Waste Pit		Pit: Nonconforming Existing Well Pump Tank		Subsurface Pumproom Nonconforming Existing		Barn Gutter		Animal Barn Pen		Animal Yard		Siló With Pit		Glass Lined Storage Facility		Siló w/o Pit		Earthen Silage Storage Trench Or Pit		Earthen Manure Basin	
Temporary Manure Stack or Platform		Watertight Liquid Manure Tank or Basin		Manure Pressure Pipe		Subsurface Gasoline or Oil Tank		Waste Pond or Land Disposal Unit (Specify Type)		Manure Storage Basin Concrete Floor Only Concrete Floor and Partial Concrete Walls		Other (Describe)									
5. Well is intended to supply water for: HOME USE										9. FORMATIONS											
6. DRILLHOLE										Kind From (ft.) To (ft.)											
Dia. (in.) From (ft.) To (ft.) Dia. (in.) From (ft.) To (ft.)										TOP Soil Surface 1											
8 Surface 22										CLAY 1 80											
4 22 160										SANDY CLAY 80 158											
7. CASING, LINER, CURBING AND SCREEN										Material, Weight, Specification											
Dia. (in.) Mfg. & Method of Assembly From (ft.) To (ft.)										Course Cobble- 158 160											
4' T+C. R+D. A589 11 1/4 FT U.S.A. Surface 160										STONES											
8. GROUT OR OTHER SEALING MATERIAL										10. TYPE OF DRILLING MACHINE USED											
Kind From (ft.) To (ft.)										<input checked="" type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary-hammer w/drilling mud & air <input type="checkbox"/> Jetting with											
CLAY slurry Surface 22										<input type="checkbox"/> Rotary-air w/drilling mud <input type="checkbox"/> Rotary-hammer & air <input type="checkbox"/> Air											
										<input type="checkbox"/> Rotary-w/drilling mud <input type="checkbox"/> Reverse Rotary <input type="checkbox"/> Water											
11. MISCELLANEOUS DATA										Well construction completed on 9-19 19 85											
Yield Test: 3 Hrs. at 4 GPM										Well is terminated 12 inches <input checked="" type="checkbox"/> above final grade <input type="checkbox"/> below											
Depth from surface to normal water level 80 Ft.										Well disinfected upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Depth of water level when pumping 105 Ft. Stabilized <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										Well sealed watertight upon completion <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
Water sample sent to STATE OF Madison laboratory on 1-28 19 86																					
Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.										2847034											
Signature Dan Hischer										Business Name and Complete Mailing Address WELL DRILLING LUCK WI 54853											
Registered Well Driller										627											